CLAIMS:

1.   Method of estimating an edge orientation in an image, the edge being located
in a neighborhood of a particular pixel (100) of the image, the method comprising:

        - creating a set of candidate edge orientations;

        - evaluating the candidate edge orientations by means of computing for each

5   of the candidate edge orientations a match error for a corresponding pair of groups (104, 106)
of pixels, the match error being based on a difference between pixel values of the two groups
(104, 106) of the corresponding pair of groups of pixels, the locations of the two groups (104,
106) of pixels relative to the particular pixel (100) being related to the candidate edge
orientation under consideration; and

10   - selecting a first one of the candidate edge orientations from the set of
candidate edge orientations on basis of the respective match errors and assigning the first one
of the candidate edge orientations to the particular pixel (100), characterized in that creating
the set of candidate edge orientations is based on previous computations.

15   2.   A method as claimed in claim 1, characterized in that the set of candidate edge
orientations is created by selecting the candidate edge orientations from a further set of edge
orientations, the further set of edge orientations comprising further edge orientations (230-
254) which have been assigned to other pixels of the image after previous edge orientation
estimations.

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3.   A method as claimed in claim 2, characterized in that selecting a second (240)
one of the candidate edge orientations from the further set of edge orientations (230-254) is
based on:

        - the second (240) one of the candidate edge orientations; and

25   - on the position of a first (262) one of the other pixels to which the second
(240) one of the candidate edge orientations has been assigned, relative to the particular pixel
(100).

4.   A method as claimed in claim 1, characterized in that the set of candidate edge orientations is created by selecting the candidate edge orientations from a further set of edge orientations, the further set of edge orientations comprising further edge orientations which have been assigned to a further pixel of a further image, after a previous edge orientation estimation, the image and the further image both belonging to a single sequence of video images.

5.   A method as claimed in claim 1, characterized in that creating the set of candidate edge orientations comprises:
        - computing an initial estimate of the edge orientation;
        - creating the candidate edge orientations on basis of the initial estimate of the edge orientation and a predetermined threshold.

6.   A method as claimed in claim 5, characterized in that computation of the initial estimate of the edge orientation comprises:
        - computing a first sum of differences between pixel values of two blocks (302-304) of pixels which have opposite horizontal offsets relative to the particular pixel (100);
        - computing a second sum of differences between pixel values of two blocks (306-308) of pixels which have opposite vertical offsets relative to the particular pixel (100); and
        - determining the initial estimate of the edge orientation by means of computing a quotient of the first sum of differences and the second sum of differences.

7.   A method as claimed in claim 1, characterized in that the first one of the candidate edge orientations is assigned to a block (102) of pixels comprising the particular pixel (100).

8.   A method as claimed in claim 7, characterized in that other edge orientations are assigned to other blocks of pixels of the image on basis of other edge orientation estimations for the other blocks of pixels and that final edge orientations are computed for sub-blocks of pixels of the image by means of block erosion.

9.   A method as claimed in claim 1, characterized in that the match error is based on the sum of absolute differences between respective pixels of the two groups (104, 106) of pixels.

5   10.   A method as claimed in claim 1, characterized in that the groups (104, 106) of pixels are respective rectangular blocks of pixels.

11.   A method as claimed in claim 1, characterized in that the groups (402-412) of pixels are respective trapezium shaped blocks of pixels of which the actual shapes depend on

10   the candidate edge orientation under consideration.

12.   An edge orientation estimation unit (500) for estimating an edge orientation in an image, the edge being located in a neighborhood of a particular pixel (100) of the image, the edge orientation estimation unit (500) comprising:

15   - creating means (502) for creating a set of candidate edge orientations;
                 - evaluating means (504) for evaluating the candidate edge orientations by means of computing for each of the candidate edge orientations a match error for a corresponding pair of groups (104, 106) of pixels, the match error being based on a difference between pixel values of the two groups (104, 106) of the corresponding pair of

20   groups (104, 106) of pixels, the locations of the two groups (104, 106) of pixels relative to the particular pixel (100) being related to the candidate edge orientation under consideration; and
                 - selecting means (504) for selecting a first one of the candidate edge orientations from the set of candidate edge orientations on basis of the respective match

25   errors and for assigning the first one of the candidate edge orientations to the particular pixel (100), characterized in that the creating means (510) are arranged to create the set of candidate edge orientations on basis of previous computations.

13.   An image processing apparatus (600) comprising:

30   - receiving means (602) for receiving a signal corresponding to a sequence of input images; and
                 - an image processing unit (604) for computing a sequence of output images on basis of the sequence of input images, the image processing unit being controlled by the edge orientation estimation unit (500) as claimed in claim 12.

14.   An image processing apparatus (600) as claimed in claim 13, whereby the
image processing unit (604) is a de-interlacing unit comprising interpolation means being
controlled by the edge orientation estimation unit (500) as claimed in claim 12.

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15.   An image processing apparatus (600) as claimed in claim 13, characterized in
further comprising a display device (606) for displaying the output images.

16.   An image processing apparatus (600) as claimed in claim 15, characterized in
10   that it is a TV.

17.   A computer program product to be loaded by a computer arrangement,
comprising instructions to estimate an edge orientation in an image, the edge being located in
a neighborhood of a particular pixel (100) of the image, the computer arrangement
15   comprising processing means and a memory, the computer program product, after being
loaded, providing said processing means with the capability to carry out:
            - creating a set of candidate edge orientations;
            - evaluating the candidate edge orientations by means of computing for each
of the candidate edge orientations a match error for a corresponding pair of groups (104, 106)
20   of pixels, the match error being based on a difference between pixel values of the two groups
(104, 106) of the corresponding pair of groups (104, 106) of pixels, the locations of the two
groups (104, 106) of pixels relative to the particular pixel (100) being related to the candidate
edge orientation under consideration; and
            - selecting a first one of the candidate edge orientations from the set of
25   candidate edge orientations on basis of the respective match errors and assigning the first one
of the candidate edge orientations to the particular pixel (100), characterized in that creating
the set of candidate edge orientations is based on previous computations.